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In the Supreme Court of the United States

OCTOBER TERM, 1943.

No. 262.

THE GOODYEAR TIRE & RUBBER COMPANY, INC.
and
GENERAL DRY BATTERIES, INC.,
Petitioners,

vs.

RAY-O-VAC COMPANY,
Respondent.

BRIEF FOR PETITIONERS.

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Respondent.

BRIEF FOR PETITIONERS.

STATEMENT OF THE CASE.

This is a patent suit for infringement of claims 1, 2 and 3 of Anthony patent No. 2,198,423 (Rec. page 168) relating to a Dry Cell Battery Structure. Petitioners were Defendants in the District Court and Appellants in the Circuit Court of Appeals while Respondent was Plaintiff in the District Court and Appellee in the Court of Appeals.

The District Court held the claims in issue valid and infringed. The opinion of the District Court appears in the Record at pages 126-135 inclusive. The Seventh Circuit Court of Appeals affirmed the District Court, the opinion appearing on pages 247-250, inclusive, of the Record.

The District Court issued an injunction* (Record, page

*The injunction is broad and sweeping and restrains Defendants (Petitioners) from making any infringing cell regardless of whether such cell is made for defense or for the Government. Such an injunction is, we believe, at least in violation of the spirit of U. S. C. A. Title 35, Section 68, relating to patented products made for Government use.

142) restraining the Defendants (Petitioners) from manufacturing, using or selling the alleged infringing dry cell. An Order was entered staying the Mandate of the Court of Appeals (Rec. page 253) to permit a Petition for Writ of Certiorari to be filed.

JURISDICTION.

A Writ of Certiorari was granted by this Court on October 18, 1943.

This is a suit arising under the Patent Laws of the United States, Judicial Code Section 24 (7), (28 U. S. C. Section 41) (7).

The jurisdiction of this Court is invoked under Section 240 (a) of the Judicial Code as amended by the Act of February 13, 1925 (28 U. S. C. Section 347).

ASSIGNMENT OF ERRORS.

Your Petitioners respectfully urge that the Court of Appeals for the Seventh Circuit erred:

(1) In failing to find claims 1, 2 and 3 of the Anthony patent in suit No. 2,198,423 (Rec. pages 159 *et seq.*) invalid for lack of invention in view of the prior art patents, and the prior art practices, and the testimony of Defendants' witnesses regarding the same.

(2) In failing to find that the claims in suit, when interpreted as they should be in view of the prior art and the file history and the explicit limitations contained therein, are not infringed.

(3) In failing to find that the claims in suit are wholly invalid because of an insufficient and defective specification and as failing to comply with Section 4888 Revised Statutes (35 U. S. C. A. Section 33).

(4) In adjudging the claims in issue broadly valid, notwithstanding the prior art, and attributing to the patentee the status of an inventor in a way in conflict with both the letter and spirit of the applicable decisions of this Court, particularly in

Cuno Engineering Corp. v. Automatic Devices Corp., 314 U. S. 84; and

Atlantic Works v. Brady, 107 U. S. 192.

(5) In adjudging the claims in issue infringed by Defendants' (Petitioners') different product, thereby giving to those claims such a **broad** construction as **to recapture from the public** and for the patentee subject matter in the public domain.

SUMMARY OF ARGUMENT.

The Points of the Argument are each of the six "Questions Involved" in the Petition for Writ of Certiorari. Stated in less formal language, the Argument may be summarized as follows:

The **only novel element** of the combination claimed by Respondents **is the outer metal sheath** which **tightly embraces** both end closures of the dry cell. Petitioners contend that this broad idea and alleged novel element is found in the prior art, particularly in the patents to

Olaneta	1,623,719 (Rec. p. 206)
Millar	1,654,823 (Rec. p. 212)
Armelin	1,299,813 (Rec. p. 198)
British Pat.	438,633 (Rec. p. 237)

The idea of applying a strong, rigid sheath to a cell is clearly disclosed in the prior patents set forth above, as well as in the prior practice dry cells (Defendants' Physical Exhibit 7 introduced at Rec. p. 94) and Defendants' V-4F dry cell (Defendants' Physical Exhibit A-4). The specific manner of securing the outer metal shell in place involved nothing more than ordinary mechanical skill.

The patent in suit is further invalid for failure to disclose adequately the alleged invention as **now asserted** so as to enable those skilled in the art to practice the same; and particularly in failing to specify **how strong** and **how thick** the metal jacket should be and **how firmly** it should grip the end closures to accomplish the desired result. The salient structural features of Respondent's commercial cell are not disclosed in the patent.

Both lower Courts fell into the error of comparing Respondent's commercial cell, which is **not** made in accordance with the structures disclosed in the patent in suit, with Defendants' (Petitioners') accused cell; **instead of** comparing the accused cell with the cell disclosed in the patent in suit.

Respondent's commercial cell, for which so much commercial success is claimed, **does not follow the teaching of the patent in suit**; and the alleged commercial success should not be permitted to raise a doubt on the lack of invention, so that such doubt may be resolved in favor of the patentee. **Every single element of the claims in suit finds its equivalent or counterpart in the prior art performing the same function in the same manner and for the same purpose.**

The claims in suit, *if considered valid*, should be limited to a dry cell having a double bottom construction or an additional reinforcement at the bottom which is not found in the accused cell. There is therefore no infringement.

This is a very crowded art and Judge Evans mentioned the "guinea pig prolificity" of inventors in this art. The claims should therefore be limited to Anthony's specific contribution to the art.

Finally, the patent in suit is a paper patent, and the specific cell disclosed therein was never made commercially; which is another cogent reason why the lower Courts should have **limited** the claims in suit to the specific

disclosure of the patent, instead of giving to them a broad interpretation, as was done.

To facilitate the work of the Court we print as Appendix to this Brief the following charts which it is hoped will be of assistance:

APPENDIX PAGE I:—Analytical arrangement of broad claim 5 which was cancelled from the application of the patent in suit and of claims 1, 2 and 3 of the Anthony patent in suit and here relied upon.

APPENDIX PAGE II.—A comparison of broad claim 5 which was cancelled from the application of the patent in suit with claim 1 of the patent in suit.

APPENDIX PAGE III:—Two figures from Corigliano patent No. 2,000,510, showing the adaptability of a doorbell cell to flashlight use.

APPENDIX PAGE IV:—An application of claim 1 of the patent in suit to the Olaneta patent using Olaneta's reference characters.

APPENDIX PAGE V:—A reproduction of the drawing of the Millar patent together with a quotation from the Millar specification.

APPENDIX PAGE VI:—A reproduction of drawings showing Respondent's commercial cell and the forces involved in constructing and assembling the same.

APPENDIX PAGE VII:—A reproduction of Deibel patent, No. 2,289,249 including the specification, under which the accused cell is made.

In view of the fact that Defendants' Physical Exhibits are not clearly and properly identified in the Index of the Record, we submit herewith a list of such Exhibits properly identifying the same:

Defendants' Ex. A-3—General Protex Cell, cut in half.

Defendants' Ex. A-4—Defendants' V-4F Lantern Battery, cut away.

Defendants' Ex. 5—A sample of a dummy dry cell furnished Anthony's attorney when the application of the patent in suit was applied for.

Defendants' Ex. 6—Plaintiff's (Respondent's) commercial cell, cut in half.

Defendants' Ex. 7—The prior Hot Shot Battery (Defendants').

Defendants' Ex. 8—Cut-away sample of Corigliano commercial cell made under patent No. 2,000,510.

Defendants' Ex. 9—Prior Everready Cell partially cut away.

Defendants' Ex. 11—Prior Bright Star Cell with Defendants' metal sleeve.

Defendants' Ex. 12—Prior Eveready Cell with Defendants' metal sleeve.

Defendants' Ex. 13—Defendants' accused cell cut in half.

Defendants' Ex. 14—Defendants' old style curled rim cell.

Defendants' Ex. 15—Large Chart showing several types of prior art cells.

Defendants' Ex. 16—Small Chart showing prior Corigliano cell with outer metal sheath applied thereto and prior Smith cell with outer metal sheath applied thereto.

Defendants' Ex. 17—Ray-O-Vac commercial cell used in a test by Mr. Birdsall.

Defendants' Ex. 18—Ray-O-Vac commercial cell used in a test by Mr. Birdsall.

ARGUMENT.

THE PATENT IN SUIT.

The patent in suit relates generally to the securing of metal jackets on dry cells of the type used in flashlight casings and the like, and more particularly to a specific casing or sheath for a cell which is said to prevent fluids from leaking out of the cell and causing injury to the flashlight casing or to other dry cells within the casing after the cells become exhausted. The patentee proposes to prevent leakage by having the metal sheath closely and rigidly confine the dry cell to a given length and diameter so as to prevent undue enlargement of the cell both radially and

axially. The patent discloses three different cell constructions.

The Cell Structure of Figure 1.

The cell disclosed in Fig. 1 comprises essentially a zinc cup A which serves as a negative electrode for the cell and which contains the usual mass of mix B' which receives therein the usual porous carbon electrode B. The usual insulator jacket 24 surrounds the zinc cup A.

The reference character C designates the metal sheath which encloses the cell and is made of sheet iron and is of tubular form with its lower end turned inwardly to form a flange 22. A rubber washer 23 insulates the sheath from the lower end of the cell and the perimeter region 14 of the bottom 15 of the cup is annularly inset to receive this washer 23. The lower end flange 22 of the sheath holds the rubber washer in the inset formed in the bottom.

The upper end of the cell is closed by an insulating disk 20 and the upper end of the sheath C is turned over the top of the disk so as to **tightly embrace** the same.

The upper end of the porous carbon electrode B has thereon a flanged cap 19 which has a perforation 21 therein which "permits venting of gas through the carbon terminal" (Patent p. 1, l. 47, second column). (Rec. p. 163.) The sheath C is said to **tightly embrace** both ends of the cell and the top flange 26 bites into a groove provided in the closure disk 20. The reference character 17 designates the electrolyte, which has the consistency of light cream. The air space 18 "permits expansion of the electrolyte and the gas may slowly escape through the perforation 21" (Pat. p. 2, l. 16, first column). The interposed insulating sheet 24, the specification states, **may be made of an insulating material such as rubber or a suitable insulating cover formed of cardboard or the like.** The general commercial practice is to form dry cell insulator jackets of treated cardboard.

The Cell Structure of Figure 8.

In the structure of Fig. 8 a double bottom is shown comprising the bottom 31 of the zinc cup, the insulating closure disk 27 and a second undescribed disk held to the disk 27 by a rivet 30 and which serves as a bottom terminal. **This functionally undescribed disk 27 is not connected to nor "embraced" by the outer "sheet metal sheath."** Fig. 8 does **not** disclose a double metal bottom structure. Nor does the patent describe the closure disk 33 as being hermetically sealed to the terminal member 34.

The Cell Structure of Figure 11.

In the structure shown in Fig. 11, a departure from the generally standard dry cell structure is made in that a zinc cup is not used, but the cell is built up within a tubular metal casing 37 which receives therein a sleeve of insulating material 38. Grooves 39 and 40 are provided in the cylindrical shell to provide abutments for the end closures. A curled sheet of zinc 41 is electrically connected to the bottom wall 42 by means of an integral lug or finger 43. The base is then gripped against the abutment formed by the groove 39 by spinning the lower end of the metal jacket 37 around the annular edges of the bottom wall 42, and the lug 43 is brought into contact with the bottom 42, as indicated at 44. The bottom wall is protected from the action of the electrolyte by means of an inert disk 45 as shown in the patent or by sealing wax. The upper end of the cell is closed by an insulating closure 49 which is fitted over the cap 50 on the carbon electrode 47. "The upper end of the casing 37 is then spun tightly against the end closure, as indicated at 51." (p. 2, l. 60, first column.) There appears to be a vent opening shown in the cap 50 similar to the one designated by the reference character 21 in Fig. 1; but such vent is given no reference character.

The Purpose of the Metal Sheath.

The function of the metal sheath is **to prevent the liquid contents of a dead or deteriorated cell from leaking and contacting the metal of the flashlight casing.** The problem is not common to all dry cells used but arises **only with those cells which through neglect are left in the flashlight for long periods after the cell** "has gone dead." There is no opportunity for the problem of leakage and swelling of the dry cell to arise during the serviceable life of the cell; but neglect in removal of a dead cell from the flashlight for a considerable period of time may result in a leaky cell (Rec. p. 108).

The lower Courts saw nothing but the presence of a metal sheath in the accused cell and the Ray-O-Vac commercial cell, and consequently disregarded all other important structural differences and left Respondent with the monopoly on any flashlight cell having a metal sheath **tightly embracing** the same;

THE PRIOR ART AND PRACTICE PRECLUDED NOVELTY IN THE USE OF METAL SHEATHS ON DRY CELLS FOR ANY PURPOSE.

Olaneta patent 1,623,719, Rec. p. 206.

The District Court ignored completely the prior art structures and practices in holding that Anthony was the inventor of—

> "a protecting sheet metal sheath insulated from both of said electrodes and enclosing the side walls of said metal electrode and tightly embracing said closures so as to prevent leakage of the electrolyte from the unit" (Rec. p. 128).

It was admittedly common practice and well known in the art long prior to the patent in suit to enclose a cell within a waterproof paper wrapper and to provide an exterior cover or casing in the form of **a metal sheath** which was insulated from the cell proper. Such a cell is shown in

the Olaneta patent No. 1,623,719 (Rec. p. 206) (See Appendix p. IV). This patent discloses a zinc cup 1 which contains a carbon pencil 2 which in turn is embedded in a depolarizing cartridge 3 contained in the zinc cup 1 and surrounded by a layer of electrolyte paste 4. The carbon pencil is provided at its upper end with a metallic cap 6 and the cell is sealed at the top by a seal of wax or pitch. The cell is enclosed within **an outer metal container 13**, and the patentee states (p. 1, line 106, second column):

> "The cell with its paper covering is then slipped into an outer container 13, which is in the form of a cylindrical can of **any suitable metallic material**, which it is seen will be **entirely insulated** from the zinc cup by the paper covering." (Emphasis supplied.)

At page 2, line 16 (Rec. p. 208), Olaneta says:

> "As shown in Fig. 3, the zinc cup, the case of insulating material and the container are all found to fit each other snugly so that there will be no looseness or play between the same."

Present in Olaneta is the use of the metal sheath for the stated purpose of making the cell waterproof, while Anthony states the metal sheath is used for the purpose of making the cell leakproof.

Thus we find in the Olaneta patent **a dry cell which is just as leak-proof as the cell shown in the patent in suit insofar as this Record discloses.** The upper closure 14 of the Olaneta cell is said to be formed of wax, pitch or the like. Nor should the Respondent be heard to say that this is not a flashlight cell for the exposing of the bottom of the Olaneta zinc cup for terminal or contact purposes is interchangeably shown in the Corigliano patent 2,000,510 (Rec. pp. 220-222) (See Appendix, page III). The Olaneta terminal screw 7 and wire 9 are omitted when Olaneta is used as a flashlight cell and this simple conversion is taught by Corigliano (Rec. pp. 220-222) and by others. (See Smith, Rec. p. 226 and Anthony prior patent, Rec. p. 216.)

It is clear that Anthony was not the originator of the idea of using a metal sheath on a dry cell which closely embraces the end closures thereof even though he may state in his patent that his metal sheath is used for a purpose different than the purpose of the Olaneta metal sheath.

The Flashlight Cell of Millar Patent (Rec. p. 212) *Has a Metallic Casing Tightly Embracing the Cell End Closures and Which Has No Electrical Contact With the Cell Electrodes.*

The Millar patent discloses a flashlight cell with a metallic sheath 10 which has no electrical contact with the cell elements. Millar's metallic sheath "tightly embraces" the top closure 3 and "tightly embraces" the bottom closure 4.

The clause "tightly embracing the end closures" is a broadly inclusive clause not limited to the patent disclosure. Millar discloses **a metal sheath** with such a function fully disclosed and stated in his patent (Rec. p. 213). Millar has an outer metallic casing 9 **tightly embracing the heads 3 and 4 and "the metal being forced into the annular grooves 6 and 7 as indicated at 9ᵉ and 9ᵉ thereby providing a sealed joint** and at the same time insulating the outer casing from the plates 3ˣ and 4ˣ'' (Specification p. 1, lines 57, *et seq.* See Appendix page V). (Emphasis supplied.)

The small perforation 10 in the Millar sheet metal jacket is no determent to the anticipatory importance of the Millar cell for Anthony teaches the public to use a vent 21 in his Fig. 1 structure, suggests it in the Fig. 11 structure, and omits instructions to seal the terminal 34 to the disk 33 of his Fig. 8 structure.

The British Patent 438,663 (Rec. p. 237) *Shows a Flash Light Cell Having an Outer Rigid Sheath Which Tightly Embraces the End Closures.*

The British patent clearly teaches the use of an outer sheath which can be made in the form of a plastic molding ("synthetic resin") and in Fig. 3 a flashlight cell structure is shown in which the sheath "a" is formed to embrace the end closures "to prevent disengagement of the cup from the closure" (Rec. p. 238, ll. 63, 64). The British patent calls the sheath a closure and states (p. 2, line 65, Rec. p. 238):

> "The closure *a* may be made of waxed or unwaxed pulpboard, strawboard, fibre, ebonite, synthetic resin or other similar insulating material and provides a convenient surface for the attachment of labels for information and advertising services."

The British patent also states, referring to the modification shown in Figs. 1 and 2 (p. 2, lines 46, *et seq.*) (Rec. p. 238):

> "When a separate disc *b* is used, this may be made of any suitable insulating material **such as metal** with an insulation coating, pulpboard, strawboard, fibre, ebonite or synthetic resin." (Emphasis supplied.)

Whether or not such an outer sheath is formed of **metal** or other material, such as a molded plastic ("synthetic resin"), would seem to be quite immaterial provided the sheath is of sufficient strength for the patent in suit does not specify the strength of the metal sheath except in terms of function. Respondent offered no proof that a plastic molded jacket would not be of sufficient strength.

The Prior Art Lantern Battery.

There is also in evidence a prior art lantern battery identified as Defendants' Physical Exhibit A-4 which discloses a plurality of cells each enclosed within a waterproof

paper sleeve, the entire unit being encased within a **metal casing** the side walls of which overlap and **tightly embrace the end closures.**

The Prior Art Hot Shot Battery.

There is also in evidence as Defendants' Physical Exhibit 7, the prior art Hot Shot Battery which consists of a plurality of cells each enclosed within a waterproof sleeve, the entire unit being enclosed within **a metal casing** the side walls of which overlap and **tightly embrace the end closures.** The Examiner so held when Anthony attempted to claim such a sheath **in broad unequivocal language.** The Examiner stated:

> **"There is no invention considered involved in merely adding a protective sheath insulated from both terminals** such as shown at 13 of Olaneta about the casing F of O'Harra." (Emphasis supplied.) (Anthony File Wrapper, page 16, Paper No. 3, Plaintiff's Physical Exhibit No. 7 introduced at Rec. p. 49.)

In view of the foregoing prior art and practices there was no room left for Anthony to exercise any inventive skill in applying a metal sheath to a flashlight cell which tightly embraced the end closures. He now predicates his monopoly upon a mere asserted difference in the function of his metal sheath as compared to Olaneta or Millar. Such asserted difference in function does not in fact exist. The record here is lacking entirely of any proof whatsoever that Olaneta, for example, is not just as leak proof as the structures shown in the patent. None of the defective cell structures shown in the record (Rec. pp. 117 to 120 inclusive) followed the Olaneta closure structure. Respondent should not be heard to say that the Olaneta metal sheath is for a different purpose and accordingly is not leak proof.

The decisions of the lower courts now prevent the public from using the Olaneta structure as a flashlight cell

in conflict with both the letter and spirit of the applicable decisions of this Court, particularly in

Atlantic Works vs. Brady, 107 U. S. 192

and the more recent decision in

Cuno Engineering Corp. v. Automatic Devices Corp., 314 U. S. 84.

The decision in *Atlantic Works v. Brady*, 107 U. S. 192, should be the controlling law here. In this classic decision Justice Bradley stated:

> "To grant to a single party a monopoly of every slight advance made, except where the exercise of invention somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences.
>
> The design of the patent laws is to reward those who make some substantial discovery or invention which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. **It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country without contributing anything to the real advancement of the arts.** It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accounting for profits made in good faith."

The Olaneta patent was cited by the Examiner and there is a presumption that the claims are valid as against the references cited by the Patent Office, provided they are

interpreted in the limited sense which carried them to patentability over Olaneta. The Examiner did not cite the Corigliano patent 2,000,510 to show the ready adaptability of a closed bottom cell to open bottom cell use or flashlight cell use thereby to increase the pertinency of the Olaneta steel jacket. However, as pointed out by Circuit Judge Sparks in the case of

Murdock et al. v. Vaughan Novelty Mfg. Co., 131 Fed. (2d) 258, C. C. A. 7th,

this is not a conclusive presumption and does not exclude Olaneta here. The presumption is a rebuttable one. Judge Sparks said (p. 259):

> "If, however, the Court is convinced from the evidence beyond reasonable doubt that the disclosure amounts to nothing more than mechanical skill, in view of the prior art cited, the Court is at liberty and it is its duty to so hold."

In that case Judge Sparks sustained the decision of the lower Court holding the claims unpatentable over the references cited in the file wrapper.*

The British patent No. 438,663 and the patent to Armelin No. 1,299,813 both of which disclose a dry cell having **a strong, rigid outer casing the ends of which are turned over inwardly and overlap and tightly embrace the end**

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*The Supreme Court, in the case of *Exhibit Supply Co. v. Ace Patents Corporation*, 315 U. S. 125, 86 L. Ed. 736, said:

> "As the question is one of construction of the claim, it is immaterial whether the Examiner was right or wrong in rejecting the claim as filed. (Citing *Hubbell v. United States*, 179 U. S. 83, 45 L. Ed. 99, 21 S. Ct. 24; *I. T. S. Rubber Co. v. Essex Rubber Co.*, 272 U. S. 443, 71 L. Ed. 342, 47 S. Ct. 136.) It follows that what the patentee, by a strict construction of the claim, has disclaimed—conductors which are carried by the cable but not embedded in it—**cannot now be regained by recourse to the doctrine of equivalents, which at most, operates by liberal construction, to secure to the inventor the full benefits, not disclaimed, of the claims allowed.**" (Emphasis supplied.)

closures of the cell, were not cited by the Patent Office nor were the prior practice batteries (Defendants' Physical Exhibits A-4 and 7) before the Examiner.

It is only when the cell is discharged and the zinc walls have been consumed or eaten through that there is danger of leakage and swelling in a radial direction. Leakage does not happen to every dead cell. This is explained by Mr. Birdsall (Rec. pp. 108 *et seq.*) wherein he points out that when a cell is discharged the zinc is used up or consumed and, when this happens, the liquid contents of the cell, or the electrolyte, wets the paper insulator which is disposed between the outer sheath and zinc cup. When this paper insulator becomes soaking wet, it swells. Mr. Birdsall pointed out that the paper insulator first had to become **soaking wet** and that this would occur some time after a cell has become discharged and useless. One of the constituents of the cell is zinc chloride which has a great affinity for moisture, and soaks up moisture from the air; and when this swelling occurs in a flashlight, the cell, should it be one that leaks, **may stick** or become difficult to remove. Sometimes dry cells do expand in an axial direction and blow out or lift the top seal, and in some cases, bulge the bottom. Photographs of such cells appear at pages 117 *et seq.* of the Record. Mr. Deibel explained (Rec. pp. 113 *et seq.*) that in some cases the carbon electrodes which are made in quantities are too dense to permit the gas to escape which causes the top seal to be blown or lifted. It was Mr. Deibel's contention (and he was not cross examined) that it is not practical to **hermetically seal** any cell; but that some provision must be made to permit excessive gas pressure to be relieved. He pointed out further that in the accused cell **a valved metal top** is used which actually can flex sufficiently to permit excessive pressure to be relieved between the gasket and the adjacent upper edge of the zinc cup. **The accused cell has an entirely different structure and theory of operation.**

THE PATENT IN SUIT IS INVALID.

A. For Lack of Invention.

The cell of the patent in suit insofar as the Record shows **never solved any problem** nor appeared on the market. It did not supply any long felt want. There is no evidence that it would accomplish the objects of the invention, and Petitioners contend that **it would not.**

It has been demonstrated that the idea of encasing a dry cell in a metal sheath is clearly shown in the Olaneta patent No. 1,623,719 (Rec. page 206). Also it was common practice in the prior art to use interchangeably door bell cell structures for flashlight cells by simply leaving the bottom of the cell enclosure open for terminal purposes. The Patent Office Examiner neglected completely to take this important fact into consideration. There is nothing left to support invention when this fact is brought into the record. The specific manner of securing the outer metal sheath in place surely involves nothing more than ordinary mechanical skill especially in view of the British patent No. 438,663 (Rec. page 237). The prior art dry cell (Defendants' Physical Exhibit A-4) and the admittedly prior Hot Shot Battery (Defendants' Physical Exhibit 7) also disclose the use of a metal sheath enclosing dry cells for the purpose of preventing leakage. The metal sheath combined with a flashlight cell is disclosed in the Millar patent 1,654,823 (Rec. p. 212).

As the Sixth Circuit Court of Appeals pointed out in the case of

Lempco Products, Inc. v. Timken-Detroit Axle Co.,
110 Fed. (2d) 307, (C. C. A. 6th);

commercial success may not be used to cloak the absence of invention with doubt, whereby such doubt may be resolved in favor of the patentee. Judge Simons also applied this well settled law when he said at page 309:

"We do not overlook the fact that the patent is for a combination and that there may be a new combination of old elements. Even so, **there must be recognition of invention in the thought of combining them. Where such elements are already substantially combined in the same or even in an analogous art, there is little room for the exercise of the inventive faculty.**" (Emphasis supplied.)

Anthony merely devised a slightly different method of securing the known metal sheath in place without changing in any way **the known combination,** or **the known function,** or **the known utility** of the sheath. The same combination is disclosed in the Millar patent performing the same function for the same purpose. The alleged invention defined in claim 1 does not reflect this slightly different method of sheath securement. The Anthony sheath continues to perform the same Millar "tightly embracing" sheath function and **there is no new coaction between the several parts claimed.** The patented cell resulted from the mere aggregation of old elements and **not from invention or discovery.** Such an act does not constitute invention (*Toledo Pressed Steel Co. vs. Standard Parts, Inc.*, 59 S. Ct. 897, 307 U. S. 350, 83 L. Ed. 1334; *Lincoln Engineering Co. vs. Stewart-Warner Corp.*, 58 S. Ct. 662, 303 U. S. 545, 82 L. Ed. 1008).

If what Anthony discloses over the prior art arises to the dignity of invention, then **mechanical skill in this country is on the decline and has indeed sunken to a new low and patents become delusions and snares to trap the skillful and unwary.** The practiced eye of the skilled artisan may be safely trusted to see what is obvious. Speaking of this crowded art, Circuit Judge Evans mentioned the doubt which arose in his mind from the presence of such a multitude of patents in so narrow a field where inventive genius evidences such a "guinea pig prolificity."

Judged by the standard of invention maintained by this Court for many years, **Anthony served merely as a**

mechanic and not as an inventor, and conceived nothing new or patentable.*

In view of the recent and consistent decisions of the Supreme Court, it is now more than ever essential that the right to a patent be extended only to advances which are the result of invention. Mere new applications of old ideas must not bar industrial progress. Only in this way, will our patent system fulfill its constitutional purpose and "promote the progress of science and the useful arts." **To construe the statute otherwise creates underserving monopolies and privileges which tend to obstruct rather than to stimulate invention.**

B. Inadequate Disclosure.

The patent in suit is further invalid for failure to disclose adequately the alleged invention so as to enable those skilled in the art to practice the same. **Of what texture and thickness** should the metal jacket be to prevent swelling after the cell is dead, and **how firmly** should it grip the end closures, and **of what material** should the closures 20, 33 and 49 be formed to accomplish the desired result? Where are the instructions to the public to use **two layers of metal** in the bottom structure which must be tightly embraced by a metal sheath? One of the first requisites of a patent is that it fully and clearly disclose the invention. In the recent Supreme Court case of

United Carbon Co. et al. v. Binney & Smith Co., 87 L. Ed. 158 (Advance Opinions)

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* A very recent case decided May 28, 1942, by the Second Circuit Court of Appeals is that of *Picard v. United Aircraft Corporation*, 53 U. S. P. Q. 563, in which Judge Learned Hand said, page 567:

> "We cannot, moreover, ignore the fact that the Supreme Court, whose word is final, has for a decade or more shown an increasing disposition to raise the standard of originality, necessary for a patent. In this we recognize 'a pronounced new doctrinal trend' which it is our 'duty, cautiously to be sure, to follow, not to resist.'"

the Court held the patent invalid because the claims were indefinite and failed to comply with Section 4888 R. S., 35 U. S. C. Section 33. The Court said (page 163):

> "The statutory requirement of particularity and distinctness in claims is met only when they clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from enterprise."

and further, pages 163-164, the Court said:

> "An invention must be capable of accurate definition, and it must be accurately defined to be patentable. Cf. *General Electric Co. v. Wabash Corp.*, 304 U. S. 364, 37 U. S. P. Q. 470."

The Supreme Court held the patent there in suit invalid for failure to define accurately the size of the carbon particle used, and for failure to define accurately such terms as "substantially pure," "comparatively small," "commercially uniform," "spongy" and "porous"; and gave weight to the testimony of the patentees regarding the confused and indefinite meaning of such terms. The Court said at page 161:

> "Patents, whether basic or for improvements, must comply **accurately and precisely** with the statutory requirements as to claims of invention or discovery * * *. The inventor must 'inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not.' The claims 'measure the invention.' * * * **In a limited field the variant must be clearly defined.**" (Emphasis supplied.)

Respondent brought into this case, a commercial cell (Plaintiff's Physical Ex. 14) with great laudation. This commercial cell is not made in accordance with any of the battery cell structures shown in the patent. There are very material departures in the commercial cell from the teaching of the patent insofar as bottom and top structures and

stress forces are concerned. These differences are quite pertinent to the question of the sufficiency of the patent disclosure.

The key to the practicability of producing dry cells with metallic sheaths **is to be found in particular top and bottom end closure structures**, although Respondent and the patentee seek to have the world believe otherwise.

The patentee, Mr. Anthony, when speaking of the material of which the top closure is formed, said (Rec. p. 82):

"A. It might be of any material.

Q. For example?

A. The most logical material that would come to mind would be fibre or bak-o-lite or strong, stiff cardboard."

It is important to note that Mr. Anthony's testimony is to the effect that the top closure may be made of **any material**. The term **any material** would of course include wax or pitch or some other material which would not be impervious to gases and liquids. He therefore does not specify any particular type of end closure.

Mr. Anthony also testified (Rec. p. 89) as follows:

"Q. You never made, commercially, the cell shown in either Figure One or Figure Eleven of the patent in suit, did you?

A. Not that I recall."

There is not one bit of evidence in the Record to show that the cell of the patent in suit solved the problem of leakage practically. The testimony is to the effect that **the cells disclosed in this patent were made only experimentally and were never put on the market**. If the top closure, as Mr. Anthony testified, could be made of **any material**, how could such a cell successfully prevent leakage when the uncontradicted testimony of Mr. Deibel is to the effect that he had measured the pressure in a flashlight cell up to one hundred pounds per square inch (Rec. p.

112)? Apparently Mr. Anthony thought that the gas pressure would be relieved through the vent 21, for the patent specification states (p. 1, lines 46 *et seq.*, second column, Rec. p. 163):

> "A perforation 21 in the end cap permits venting of gas through the carbon terminal."

Obviously an end closure formed of **any material** would not withstand a pressure of a hundred pounds per square inch. This attempt of the patentee to lead attention away from the lack of practical top and bottom closures in his patent will be referred to again.

The Carbon Electrode of Respondent's Commercial Cell Must Serve as a Prop Between the Metal Top and Double Metal Bottom.

Respondent's commercial cell did not appear on the market until June 1939, more than a year after the patent in suit was filed.

Respondent's commercial cell has a metal top structure and a double metal bottom structure not found in the Anthony patent. The commercial cell involves a force distribution down through the central carbon electrode **necessitating a double bottom metal structure** which is absent entirely in the accused single bottom structure. Respondent's commercial cell cut in half is of record as Defendants' Physical Exhibit 6. Also see Chart, Appendix page VI.

It may be helpful to point out now those structural features of the commercial cell which are direct departures from the patent.

It should be noted again that both Respondent's commercial cell (Defendant's Physical Exhibit 6) and the accused cell (Defendant's Physical Exhibit 13) are provided with all metal top closures, a desirable structural feature which had proved its merit on the market long

before either Respondent or Petitioners ever placed an all metal top cell on the market. The all metal top was pioneered by others (Rec. p. 106).

Both Figs. 1 and 11 show a top insulator closure disk 20-49 respectively "which forms an end closure for the cell" (spec. lines 45 and 46, p. 1, second column) (Rec. p. 163).

The upper edge of the sheet metal sheath is "spun inwardly" so that "a spun flange 26 bites into a groove provided in the closure 20 so that a very tight joint is provided" (spec. p. 2, lines 9-11 first column) (Rec. p. 164). In Figs. 1 and 8 this spinning and biting forces the insulator down upon the top edge of the zinc cup with the upper edge of the insulator jacket 24 turned in and squeezed against the top edge of the zinc cup. In Fig. 11 this spinning merely forces the disc 49 down against a shoulder 40 with the top part of the insulator jacket 38 squeezed against the internal shoulder 40 formed on the zinc wall. The carbon pencil or electrode in each of these three structures does not serve as a compression prop like the carbon pencil in Respondent's commercial cell as demonstrated in the Appendix Chart, page VI.

In Appendix, page VI, we have shown in Fig. A a cross-sectional view of plaintiff's commercial cell without the pitch seal and the mix..

The top edge of the zinc cup **a** is spaced a very substantial distance **x** below the metal top **b**. The insulator jacket **c** extends up over the beaded perimeter of the metal top **b**.

When the metal jacket **d** is bent over the beaded perimeter of the metal top **b** as shown at d_1, the bottom flange d_1 is tightened on the double bottom structure but the cylindrical wall of the cup plays no part in this action **due to the spacing x. The entire compression is transmitted by the carbon pencil e from the metal top b down to the insulating disc f.**

Also it will be noted that in plaintiff's commercial cell there is no gas space in the top region of the cell structure as described or indicated in all three of the Anthony structures shown in the patent in suit. Soft pitch or asphalt fills the corresponding space, including space **x**.

The double bottom wall structure $\mathbf{a}_1$ and **g** then carry the compressive load outwardly to the bottom of the steel jacket flange **d**.

In Fig. B of the chart (Appendix page VI) these compressive forces are represented by arrows marked with the corresponding reference numerals of the parts of Fig. A which carry these forces in the manner shown, wherein the zinc cup bottom tends to bulge down, as indicated by the dot and dash lines, if not reinforced by the second metal bottom **g**.

In Respondent's commercial cell there is no compressing of the washer against the top edge of the zinc cup as shown in Figs. 1 and 8. Nor is there a shoulder formed in the commercial zinc cup as in Fig. 11, against which a spinning of the top edge of the sheath could react. **There is no co-action whatever between the metal top and the upper edge of the zinc cup.** The entire compression force of the closing operation, in the manufacture of Respondent's commercial cell, has to be transmitted from the metal top down through the center of the cell structure by the carbon pencil or electrode to the central region of the bottom of the zinc cup. The bottom of the zinc cup also has to be of sufficient strength to transmit this force outwardly to the bottom flange of the metal sheath. **Here is the real reason why Respondent in its commercial cell has to use a double metal bottom as a reinforcement and there is not one word to be found in the Anthony patent about the use of a double metal bottom structure.**

Respondent's witness Mr. Ramsey verifies the necessity of a double metal bottom structure when he was asked during cross examination (Rec. pp. 56, *et seq.*):

"Q. Have you ever experimented with the Leak-Proof Ray-O-Vac cell leaving off this reinforcing bottom?

A. Yes, sir, we have made certain tests.

Q. I hand you a cell and ask you if that is the one you are now telling us about?

A. **This construction is the same as the normal construction, except the steel reinforcing plate is omitted from the bottom, and the pressure developed in the cell has rounded out the bottom of the zinc can.**" (Referring to Pff's. Physical Exhibit 13.)

The patentee's story, however, is given carefully to avoid any importance being attributed to **the necessity for the double bottom structure**. Anthony tried to make it appear that the extra bottom was inconsequential (Rec. p. 81):

"Q. Referring now to the commercial Ray-O-Vac Leak Proof cell, we note the metal plate on the bottom.

A. Yes, sir.

Q. Will you tell us the original purpose of that plate?

A. The original purpose of that plate was, we were going to start out to merchandise this cell at a higher price than ordinary, and **in order to be extra safe and sure that no leak would get past, I insisted that an extra plate be placed on there temporarily.**

Q. Later on, when you reduced the price of the cell from two for a quarter to ten cents each, was the question of the metal plate again considered?

A. Yes, sir.

Q. And what was decided?

A. **Well, it is economy, together with the fact that it gives an added reinforcement and additional assurance against any possibility of leakage,** and the bright surface eliminated cleaning the bottom of the zinc can, and also gives what, we call, identity to the cell, and it is more economical to leave it on than to take it off." (Emphasis supplied.)

How could retaining the extra bottom or additional reinforcement be an economy?

Petitioners earnestly urge that the claims in suit are invalid on account of lack of disclosure as well as for lack of invention.

RESPONDENT'S ALLEGED COMMERCIAL SUCCESS.

The lower Courts seem to have been **greatly impressed** by the commercial success of a cell alleged to be the patented cell. The District Court said in his opinion (Rec. p. 129), referring to the Anthony cell:

> "His device met with **immediate remarkable success.** Not only did the sales of plaintiff increase rapidly but they grew in greater proportions than those of other manufacturers in a highly competitive field. * * * To this accomplished utility we must give due weight in determination of whether he achieved invention, for, as the Supreme Court has said, it is entirely proper that evidence of great utility of method or device, in some circumstances, be accepted as evidence of invention." (Emphasis supplied.)

We have already pointed out in considerable detail wherein the commercial cell is **quite different** from the cell disclosed in the patent in suit and that Respondent departs greatly from its teaching.

We desire to point out now that there was **nothing unusual** about the increased sales of Respondent's commercial cell and that the Chart, Plaintiff's Exhibit 25 (Rec. page 122), is also quite misleading.

It should be noted that the production figures given at the upper left hand corner of the Chart, compare the number of flashlight cells sold in the entire industry, **including "leakproof" as well as non-leakproof cells,** with the total number of No. 2 unit cells sold by Ray-O-Vac, **including "LEAK-PROOF" as well as so-called "non-leakproof cells."** The testimony is to the effect, and the Chart, Exhibit

25, shows, that the so-called Leak-Proof cells were introduced by Ray-O-Vac in the summer of 1939. The testimony shows further (Rec. p. 79) that the wax top cell was introduced between 1936 and 1937; and that was followed by the metal top cell; and that the Leak-Proof cell was not introduced until June 1939; and further, that the metal top cells gradually replaced the wax top cell; and the Leak-Proof cell gradually absorbed the metal top cell. There is nothing in the Record to show the percentage of Ray-O-Vac "Leak-Proof" cells sold by Ray-O-Vac with respect to its metal top cells which were **not** designated "Leak-Proof." Further, the "Leak-Proof" cells, when they were first placed on the market, sold at a price of two for 25¢, whereas the price was reduced in January, 1940, to 10¢ straight retail. **This fact alone might well have been responsible for the increase in sales.**

Another important fact to be considered is that Ray-O-Vac secured quite a large order from the Signal Corps for the fiscal year ending July 1941. Mr. Clardy testified (Rec. p. 70) that this order was for 21,000,000 cells. Respondent's entire sales for 1941 including Leak-Proof cells, as well as cells not called Leak-Proof, were only 30,370,609; so that the order from the Signal Corps was about two-thirds of their business for that year. **This order also was considerably more than Respondent's entire business for both the years 1939 and 1940.** We believe this Court will take judicial notice of the fact that fat war orders can not be relied upon as indicative of the patentability of a war necessity, such as a dry cell.

Mr. Anthony's figures, as given in his testimony on pages 78 and 79 of the Record, as to sales of "Leak-Proof" cells for the years 1939, 1940, and 1941, are at great variance with the figures given in the Chart (Plaintiff's Exhibit 25) for he states there that in 1939 Ray-O-Vac sold only 733,018 Leak-Proof cells and that the sales for the year 1940 were 12,629,678; and the sales for the year 1941

were, as given in his testimony, 33,362,293 instead of 30,370,609, as appears from the Chart (Plaintiff's Exhibit 25). Mr. Anthony's testimony also does **not** make it clear whether the figures given in his testimony cover only "Leak-Proof" cells, or include the metal top cells, **not** called Leak-Proof. The Chart (Plaintiff's Exhibit 26, Rec. p. 123) also shows that **Ray-O-Vac more than doubled its advertising for the years 1940 and 1941, as compared with 1939.** It was also about this time that Ray-O-Vac brought out its merchandising scheme along with which went its guarantee to replace flashlight cases which might be ruined by Ray-O-Vac (so-called) Leak-Proof cells. This psychological bait merely shows that **Ray-O-Vac was merely a good merchandiser in an expanding market.**

It is submitted that the Courts below misunderstood or misinterpreted the Charts, as well as the testimony with regard to Respondent's "remarkable success and rapidly increasing sales."

PETITIONERS' CELL DOES NOT INFRINGE.

The Structure of the Petitioners' Cell Differs Materially From the Structure of the Patent in Suit.

Respondent's top closure in its commercial cell comprises a one-piece metal top having a central integrally formed recess to receive the upper end of the carbon electrode. The top closures of the cell of the patent in suit comprises insulator disks 20, 33 or 49, having a central aperture for the caps 19, 34, or 50 to extend through so that,

> "The top closure 20 is then forced over the cap 19 and the top edges of the steel jacket are spun inwardly so that the jacket tightly embraces the both ends of the cell. Preferably, a spun flange 26 bites into a groove provided in the closure 20 so that a very tight joint is provided." (Spec. page 2, col. 1, lines 5-11.) (Rec. p. 164.)

Petitioners' metal top cell is not **tightly embraced** directly by an inwardly and downwardly spun flange which

bites into a groove 20 provided in the closure. There is no corresponding groove or bite function present in the sheath and metal top connection of the accused cell. There is in fact an extension of the usual insulator jacket up over the metal top to lie beneath the top flange of the sheath and which insulates the peripheral region of the metal top from the metal sheath flange. (Rec. p. 112.)

The accused cell has a metal top which serves the dual purpose of being both a terminal member and a closure member. The claim calls for two members in the top structure.

But a still more important distinction is that Petitioners' top closure is not brought down directly upon the top end of the insulator jacket and the top edge of the zinc cup as in Figs. 1 and 8 of the patent, nor down upon an inwardly extending shoulder as at 40 in Fig. 11 of the patent in suit.

Petitioners' metal top closure connection comprises a **patented* venting valve structure** which was described by Mr. Deibel (Rec. p. 112). Petitioners' cell is not "hermetically sealed." The upper region of the zinc cup is directed or formed inwardly away from the metal sheath, the insulator jacket and the outer rim of the metal top. A rubber valving member is interposed between the inturned edge of the zinc cup and the under face of the metallic top. The metal top is bulged outwardly to provide a flexing space for the rubber washer. The net result of this particular metal top closure is that when the gas pressure present in the space above the active materials in the cell increases to the problem point the rubber washer and metal top are flexed so that gas escapes past the top edge of the zinc

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* Deibel was granted a patent No. 2,289,249 on this improved top construction (See Appendix page VII). This shows that the Patent Office considered the accused cell to be an improvement different from and patentable over the Anthony patent in suit.

cup and dissipates through the insulator jacket. **This entire theory of metal top structure with gas pressure release is entirely absent in the Anthony patent disclosure.**

The accused cell has a bottom structure which is entirely different from that of the bottom structures of Figs. 1, 8 and 11 of the patent. Petitioners use and have used for years (Birdsall Rec. pp. 96 and 97) **an extruded zinc cup with a relatively thick bottom as distinguished from a drawn zinc cup wherein bottom and side walls are of substantially the same thickness.** While this difference between the bottom of a drawn cup, such as Respondent uses, and an extruded cup, such as Petitioners use, is due to the entirely different methods of manufacturing the respective cups, nevertheless Anthony's proposals of bottom structures were dominated by the **thin bottom** difficulties of a drawn cup. Since Petitioners' cell structure is such as to not require a double bottom structure, no double bottom structure is present and claim 1 in suit is not infringed.

The Respondent is here striving for a **broad** interpretation of **limited patent claims** which, if successful, will leave Respondent with **a monopoly on the idea of placing a sheet metal casing upon a standard dry cell,** when the record shows that this **broad idea** is old. By accusing Petitioner's cell the attempt is being made to sustain **broadly** a specific patent, the structural disclosure of **which has not been followed by any one, not even the Respondent.**

The Claims in Suit Become Ambiguous When Applied to the Accused Cell.

Appearing as an Appendix to this Brief is a Chart (Appendix p. I) containing claims 1, 2 and 3 broken down into their constituent parts. It will be seen that claim 1 calls for seven elements. Claim 2 which depends from claim 1, merely adds the further limitation that the sheet metal sheath is insulated from both of the electrodes. Claim 3 also depends from claim 1 and has the further limitation

that the marginal end portions of the sheath are turned inwardly to form flanges which overlap the end closure. Since claims 2 and 3 are dependent upon claim 1 and either stand or fall with claim 1, we shall discuss only claim 1.

It has been pointed out in detail the structural differences between the accused cell and the structures of the patent in suit.

Clause 2 of claim 1 calls for

"a hollow cylindrical zinc metal electrode **containing** electrolyte"

Clause 5 calls for

"a bottom closure for the cell affording a terminal for one of the electrodes"

Here are the **definite limitations** in the claim calling for two bottoms and which stand in the way of any clear and unequivocal application of the language to the single bottom structure of the accused cell.

Also, in the first Office Action, page 16 of the Anthony file wrapper, (Plaintiff's Physical Exhibit 7, offered Rec. p. 49), no claims were allowed. Then original broad claim 5 was cancelled **deliberately**.

Appendix page II is a line for line comparison of claim 1 here in suit and cancelled original claim 5.

It will be seen that claim 5 contains six elements while claim 1 contains seven elements. Canceled claim 5 specifies

(2) "a cup-shaped metal electrode containing electrolyte,"

while Item (2) of claim 1 specifies

(2) "a hollow cylindrical zinc metal electrode **containing** electrolyte."

Claim 1, in addition, specifies

(5) "a bottom closure for the cell affording a terminal for one of the electrodes,"

while the broader cancelled claim 5 entirely omits the secon bottom, Item (5) of claim 1.

The expression

"a. hollow cylindrical zinc metal electrode containing electrolyte"

must mean a cylinder having a bottom, otherwise it could not contain electrolyte. Mr. Anthony testified (Rec. p. 86) that the electrolyte was about the consistency of thin cream and was a flowable mixture. He was asked whether the hollow cylindrical zinc electrode shown in Figs. 11-13 would contain the electrolyte unless it had a bottom; and his reply was:

"Obviously, no." (Rec. p. 87.)

So that the accused cell differs from claim 1 in suit in that it does not have

(2) "a hollow cylindrical zinc metal electrode containing electrolyte"

and also

(5) "a bottom closure for the cell affording a terminal for one of the electrodes."

Likewise there is—

(6) "a top closure for the cell provided with a terminal."

The accused cell does not have two members embodied in its outer top structure. The accused cell has only a single piece metal stamping which serves as both terminal and closure, and does not serve as an insulator. The accused cell has one or the other. It cannot have both because it does not have any kind of a double bottom structure.

The test of infringement of a product patent is the presence of each element or its equivalent. This law was applied by Circuit Judge Evans in the case of

Jogger Mfg. Corp'n v. Roquemore, 118 Fed. (2d) 867, C. C. A. 7th.

In that case the accused structure omitted one element of the claim. Judge Evans said (p. 869):

"Defendant contends that it has neither element 4 nor 5. We think it clear that it does not have element 5. The plaintiff states that said element 'is functionally present.' This is not sufficient. The combination may produce the same results, yet by a different element. The test of infringement of a product patent is presence of each element or its equivalent. It is clear that 'longitudinal plates supported by the brackets, each having turned down apertured ends' is not met by; and plaintiff's president concedes it was not met by, the accused structure which had but one turned-down apertured end.

Defendant's structure did not have a bracket attached to the frame nor was its frame attached to the bracket. It did not have downward turned apertured ends.

It is fairly inferable from the prior art that plaintiff was required to narrow its claim and limit it to the disclosed and described invention which included elements 4 and 5. **This made it easier for an infringer to avoid infringement, but without its insertion plaintiff was confronted by a charge of invalidity.**" (Emphasis supplied.)

That is exactly the situation in this case, for the accused cell does not have both items (2) and (5) of the claims in suit. It has either one or the other, **but not both.**

Judge Evans also applied this same general rule of law in the case of

James P. Marsh Corp'n v. United States Gauge Co., 129 Fed. (2d) 161, C. C. A. 7th,

and said (p. 165):

"So construing the decisions and applying them to this case, we conclude that it would be an undue enlargement of the monopoly to include the product with one of the three vital elements omitted. It would unjustifiably extend the doctrine of equivalents to a patent in which the specific structure of the product

was the heart of the invention. The express language of the claims forbids it. The specifications stress the specific structure. **The action of the Patent Office and the position of the patentee when broader claims were refused, forbid the construction for which the plaintiff now contends.**" (Emphasis supplied.)

The language quoted is particularly applicable to the case at bar. This well settled rule of patent construction was applied by the Supreme Court in the case of

Schriber-Schroth v. Cleveland Trust Co., et al., 61 S. Ct. 235; 311 U. S. 211, 85 L. ed. 132,

wherein the Court said (p. 137):

"It is a rule of patent construction consistently observed that a claim in a patent as allowed must be read and interpreted with reference to claims that have been cancelled or rejected and **the claims allowed cannot by construction be read to cover what was thus eliminated from the patent.**" (Emphasis supplied.)

There is also a generally accepted doctrine that where the language of a patent is susceptible of a particular construction, the Patent Office proceedings may be resorted to to determine whether that construction accords the avowed intent of the parties to the contract (*Goodyear Dental Vulcanite Co. v. Davis*, 102 U. S. 222; 26 L. Ed. 149; *Wiegand v. Bingham*, 106 Fed. (2) 546; *Gasoline Products Co. v. Champlin Refg. Co.*, 86 Fed. (2d) 552; *Warren Bros. Co. v. Thompson*, 293 F. 745).

The Supreme Court further re-stated the Rule in the *Schriber-Schroth* case and said:

"The patentee **may not, by resort to the doctrine of equivalents**, give to an allowed claim a scope which it might have had without the amendments, the cancellation of which amounts to a disclaimer. * * * The injurious consequences to the public and to inventors and patent applicants if patentees were thus permitted to revive cancelled or rejected claims and restore them to their patents are manifest. See *Leggett v. Avery*,

101 U. S. 256, 259, 25 L. ed. 865, 866." (Emphasis supplied.)

The Supreme Court in the case of *Schriber-Schroth Co. v. Cleveland Trust Co. et al.*, 59 S. Ct. 8, 305 U. S. 47, 83 L. Ed. 34, also had occasion to comment upon R. S. Section 4888. The Court said:

"The object of the Statute is to require the patentee to describe his invention so that others may construct and use it after the expiration of the patent and 'to inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not.' *Permutit v. Graver Corporation*, 284 U. S. 52, 60, 76 L. ed. 163, 167. It follows that the patent monopoly does not extend beyond the invention described and explained as the statute requires, *Permutit v. Graver Corporation, supra*, at 57; **that it cannot be enlarged by claims in the patent not supported by the description,** *Snow v. Lake Shore Railway*, 121 U. S. 617; cf. *Smith v. Snow*, 294 U. S. 1 (24 U. S. P. Q. 26); and that **the application for a patent cannot be broadened by amendment so as to embrace an invention not described** in the application as filed, at least when adverse rights of the public have intervened." (Emphasis supplied.)

In the case of

Sky Writing Corporation of America v. Phillips Petroleum Co., 97 Fed. (2nd) 218, C. C. A. 7th,

Judge Lindley, sitting as a Circuit Judge, applied this general rule regarding file wrapper estoppel and said (p. 222):

"Claim (1) of the application originally filed did **not** specify a separate preheating chamber. It was cancelled and amended claims were offered in which a preheating chamber **was** specified. However, the specifications were **not** amended. It seems apparent, therefore, that the patentee inserted the additional element in his combination claim in order to avoid anticipation. **The element thus added became a vital**

part of his claim and the specifications describing the elements of the cancelled claims cannot be relied upon to enlarge the claim finally allowed, narrowed by the inclusion of an additional element. *Smith v. Magic City Kennel Club*, 282 U. S. 784, 51 S. Ct. 291, 75 L. Ed. 707; *Keystone Driller Co. v. Northwest Engineering Corp.*, 294 U. S. 42." (Emphasis supplied.)

Thus it is obvious that Respondent's contentions before the lower Courts as to the broad basis of the Anthony invention cannot be supported by the language of the claims without a liberality of interpretation which introduces fatal ambiguities. Anthony was not granted a monopoly on any kind of a metal sheath which tightly embraces the end closures of any kind of a dry cell.

RESPONDENT'S COMMERCIAL CELL GENERALLY FOLLOWS THE TEACHING OF ITS SECOND PATENT NO. 2,243,938.

The Anthony second patent (appearing at page 234 of the Record), not here in suit, is more like Respondent's commercial cell. This patent states, page 1, line 40:

"By protecting the side walls of the cup, most of the danger of leakage is avoided, but **in some cases it is desirable to provide additional protection for the bottom and top of the cell.**" (Emphasis supplied.)

And further, same page, line 6, second column:

"Another object of the invention is **to provide additional protection for the bottom wall of the zinc cup** and to protect the **metal** top closure from the corrosive action of the chemicals in the cell.

Still another object of the invention is to provide an **improved hood or cap** for the top of the cell * * *". (Emphasis supplied.)

The record discloses that Respondent's commercial cell appeared on the market in the summer of 1939 while Anthony's second patent was filed March 3, 1939; and **the claims relied upon in this suit were inserted into the first**

Anthony application by an amendment dated July 11, 1939 (Anthony File Wrapper, Paper No. 6, page 24, Offered Rec. p. 49). Here Anthony sought to broaden the claims to cover the cell disclosed in the second patent, i.e., the commercial cell. A double metal bottom is not disclosed in either Anthony patent.

The File Wrapper of Anthony's Second Patent No. 2,243,938.

It was necessary to issue an entirely new patent in order to teach those skilled in the art to produce Respondent's commercial cell.*

Respondent's commercial cell is more like Respondent's second patent than the patent in suit, and we call attention to the file wrapper of Anthony's second patent No. 2,243,938 (see Pff's. Physical Ex. 9, offered Rec. p. 49) wherein Anthony's attorney proceeds to point out structural differences and **the many improved results and advantages** obtained from the cell disclosed in the second patent. On page 16 of the file wrapper of the second patent (Paper No. 4), Anthony's attorney states:

> "The claims in the present application are specific to the structural features **such as the use of the metal hood** which is insulated from the sheet metal shell but is adapted to cooperate in withstanding **great internal pressure** without permitting distortion of the cylindrical form." (Emphasis supplied.)

On page 21 of the file wrapper of the second Anthony patent, Anthony's attorney states:

> "Some of the particular advantages of the leakproof dry-cell in the present application over the cell illustrated in the original application are in **the improved metal top or closure member, the way in which**

---

* Respondents' commercial cell is also marked as made under the Second Anthony patent No. 2,243,938 (See Defendant's Physical Exhibit No. 18).

it is mounted to withstand great pressure and chemical action, and also **an improved base construction** which adds to strength of the unit. As will be pointed out below, none of these features, as now claimed, are found in the art **and they all contribute to make a leak-proof cell that is stronger and even more reliable than the one shown in the parent application.**" * (Emphasis supplied.)

On page 30 of the file wrapper of Anthony's second patent, Paper No. 8 (Pff's. Physical Ex. 9, Offered Rec. p. 49), Anthony's attorney says:

"One of the principal advantages of the present construction over that shown in applicant's patent (referring to the patent in suit) is in that **an improved metal end closure is provided and** is gripped firmly in position by an **improved construction of curling the metal sheath over the bead** and insulation at the top of the cell. This type of a connection is what a small boy might describe as an 'Indian grip,' i.e. one wherein one curved surface is engaged by another. Such an arrangement eliminates **the danger of a sharp metal edge cutting through the insulation** and making electrical connection with the terminal from which it is to be insulated. Another advantage is in the improved use of a compression washer which is gripped between the metal hood and the top of the metal electrode. **This arrangement provides a very tight and leak-proof connection.**" (Emphasis supplied.)

Further, in the same argument, page 31, Anthony's attorney says:

"As we indicated at the interview, the present application **shows a commercial form** of applicant's invention and **it has already met with enormous commercial success,**† not only in the United States but in foreign countries." (Emphasis supplied.)

---

* The parent application resulted in the patent in suit.

† No commercial success is shown for the specific cell disclosed in the patent in suit.

Anthony's second patent is said by him to disclose **a hermetically sealed cell,** while the cell of the first patent **is not,** as Anthony testified that the top closure of the cell of the first patent could be made of "any material." This statement is borne out by the following statement appearing on page 15 of the file wrapper of the second patent:

> "In conformity with the Examiner's requirement of division, claims 1 and 2 have been cancelled without prejudice and applicant has elected to prosecute claims 3-10 drawn to **a hermetically sealed cell.**" (Emphasis supplied.)

We find from the quotations above, Anthony's attorney pointing out to the Examiner the specific differences in construction and advantages obtained by the cell of his second patent as distinguished from the cell of the patent in suit. **It was the metal top construction disclosed in Anthony's second patent which produced the cell which had the alleged great commercial success, and not the cell of the patent in suit.**

Commercial Success Should be Considered Only in Case of Real Doubt.

Even if Ray-O-Vac did have **some measure** of commercial success with its so-called leak-proof cell and merchandising scheme including a guarantee to replace flashlight cases which such (leak-proof) cells might injure, such commercial success should be considered **only** in a case where there is **grave doubt** in the mind of the Court as to the validity or patentability of the claims in suit. This is well settled law and we call attention only to the case of

> *Altoona Publix Theatres Inc. et al. v. American Tri-Ergon Corp'n, et al.*, 294 U. S. 477, 79 L. Ed. 1005, 55 S. Ct. 455,

decided by the Supreme Court of the United States on March 4, 1935 in which that Court said:

"When there is **real doubt** as to whether a claim defines invention over the prior art, commercial success, **if clearly attributable to the thing claimed** may turn the scales in favor of the claim. **That is its only role.** *DeForest Radio Co. v. General Electric Co.*, 283 U. S. 664, 685, 75 L. ed. 1339, 1348, 51 S. Ct. 563; *Hotchkiss v. Greenwood*, 11 How. 248, 254, 13 L. ed. 683, 685; *Smith v. Nichols*, 21 Wall. 112, 114, 22 L. ed. 566." (Emphasis supplied.)

It will be noted that the Court specifically pointed out that, in the first place, **there must be some real doubt** as to whether the claim defines invention **before commercial success should be considered at all**; and in the second place, such commercial success must be **clearly attributable to the thing claimed.** We have already pointed out wherein the alleged commercial success **is not clearly attributable to the thing claimed**; but that Respondent's commercial cell was a cell **quite different** from the cell disclosed and described in the patent in suit.

It is submitted that the Record shows conclusively that there was nothing **unusual** about Ray-O-Vac's increasing sales following the bringing out of the so-called Leak Proof cell. The market was greatly expanding for manufacturers of dry cells during the years following 1939. Even accepting Respondent's figures, its position in the industry increased from 13.2% to 15.8% from 1939 to 1941, which is a net increase of only 2.6% which cannot be considered anything **astounding**, especially when the large Signal Corps order is considered.

SOME OBVIOUS ERRORS IN THE OPINION OF THE DISTRICT COURT.

The opinion of the District Court appears at pages 126 *et seq.* of the Record. The Court below very obviously treated and considered the Ray-O-Vac commercial cell **as the cell disclosed in the patent in suit**; and the Court of Appeals fell into the same error. Earlier in this Brief, we have pointed out the many differences and distinctions between the cell disclosed in the patent in suit and the commercial cell; and also **that there is no proof whatever that the cell disclosed in the patent in suit made any impression upon the art, or accomplished the objects of the alleged invention. There is no testimony in the Record that such a cell ever accomplished that purpose, or made any impression on the art. If this cell prevented leakage or solved the problem, why did not the Ray-O-Vac Company put it on the market?**

Both lower courts made the error of comparing Plaintiff's commercial cell with the accused cell, whereas it should have compared the cell disclosed in the patent in suit with the accused cell.

The lower Courts completely disregarded several additional limitations in the claims in suit. Claim 1 includes a bottom closure in addition to the

> "hollow cylindrical zinc metal electrode containing electrolyte"

and also contains the further limitation that the sheet metal sheath must be

> "insulated from both of said electrodes."

Also the claim includes a top closure member plus a terminal member whereas the accused cell has a single metal top member which serves the double purpose of being both a closure member and a terminal member.

The Appellate Court gave a general and perfunctory indorsement to such a broad interpretation of the claims in suit. (Rec. p. 247.)

The interpretation of the claims and the scope given them are conclusions of law as distinguished from findings of fact and the Appellate Court, we submit, has the duty of determining whether such conclusions are justified by the proofs.*

The District Court also seems to have misunderstood the purpose and action of the electrolyte, for on page 126 of the Record the opinion points out that the electrolyte greatly **corrodes** the zinc until eventually the mixture leaks through the container. This of course is incorrect as was pointed out by Mr. Birdsall. (Rec. pp. 109 *et seq.*). The zinc is not corroded by the electrolyte but the chemical action actually consumes the zinc until the electrolyte leaks through and wets the paper liner until it swells. The zinc wall does not swell. **The zinc wall does not expand against the resisting steel jacket** contrary to the opinion of the District Court (Rec. p. 128). **It is consumed.**

---

* Rule 52 (b) of the Rules of Civil Procedure provides:

"When findings of fact are made in actions tried by the Court without a jury, **the question of the sufficiency of the evidence to support the findings** may thereafter be raised whether or not the party raising the questions has made in the District Court an objection to such findings or has made a motion to amend them or a motion for judgment." (Emphasis supplied.)

We believe that under this rule **the Court of Appeals is required to give a full review** of the findings of fact and conclusions of law of the lower Court on the questions of validity and infringement. This question is of paramount importance in the administration of the Patent Law. If the Court of Appeals is to **merely** accept the lower Court's ruling on the questions of validity and infringement, then **an appeal in patent cases becomes a vain and useless thing.** There is a growing tendency in that direction. It is submitted that this Court should authoritatively decide this point of law, and the effect of Rule 52(b) on this procedure. An appellant in a patent case should, we submit, be entitled to have **a full review** of the findings of the lower Court; and to **the independent judgment** of the Circuit Court of Appeals on the issues of validity and infringement, which are at least mixed questions of law and fact.

The District Court further stated that by "crimping the steel jacket tightly over the end closures or making the bottom integral with the cylinder the expansion of the cell at the ends is prevented." This is also incorrect, for, as Mr. Anthony pointed out, the cell disclosed in the patent in suit might have an end closure **made of any material**, so the crimping of the jacket over the end closure could not prevent axial expansion of the cell at its upper end. There is no tendency for the zinc cup to elongate endwise or axially if it is properly vented.

The District Court also said (Rec. p. 128) that the bottom of the zinc cup of the accused cell is made thicker than the side walls to prevent corroding and leaking. That is not the purpose of the thick bottom wall as the bottom wall is attacked by the electrolyte in the same manner as are the side walls. The purpose of the thick bottom in the accused cell is to give additional mechanical strength to the zinc cup bottom; and cells with such thick bottoms were made by the Defendant, General, long before either Respondent or Petitioners produced an iron clad cell. (See Chart "DEF'S. OLD CONSTRUCTION," Defendants' Physical Exhibit 15). Thus Petitioners never had a bottom problem **involving the necessity of any additional bottom closure or reinforcing member** as is provided in the cells disclosed in Figs. 8 and 11 of the patent in suit and which the Respondent found necessary in its commercial cell.

We should like to further point out that the District Court was in error in finding that the prior art did not disclose

> "a protecting sheet metal sheath insulated from both of said electrodes and enclosing the side walls of said metal electrode and tightly embracing said closures so as to prevent leakage of the electrolyte from the unit."

A metal sheath **tightly embracing** the end closures of the cell is clearly disclosed in the Olaneta patent (Rec. p.

206) and also in the Millar patent No. 1,654,823 (Rec. p. 212). The small perforation 10 in the Millar metal jacket is no avoiding distinction. Anthony suggests that the public use perforation 21 in the cell structures of Figs. 1 and 11 of his patent and there is no instruction to seal the terminal 34 of his Fig. 8 structure to the top disk 33.

The objects of the Millar invention as stated in his specification are **substantially identical** with the objects of the invention stated in the patent in suit, namely: **to prevent leakage and sticking of cells within a flashlight casing. We, therefore, find in the Millar patent a protecting sheet metal sheath insulated from both electrodes and tightly embracing the end closures.** Claim 1 in suit is not limited to spinning the metal sheath over the end closures. Anthony merely took the metal sheath from Millar, where it was used for exactly the same purpose, and modified it slightly to accomplish the same result. **Therefore, every single element set forth in the claims in suit is found in the prior art performing substantially the same function in substantially the same manner; so, the claims in suit should be found invalid** unless limited to the details of construction disclosed in the patent in suit.

The Seventh Circuit Court of Appeals in the case of

Dixie Vortex Co. v. Paper Container Mfg. Co., 130 Fed. (2d) 569, C. C. A. 7th,

speaking through Judge Major, said (p. 577):

> "Plaintiff points out each of the elements of the claims involved and makes a rather convincing showing that they read directly upon the alleged infringing device. From what we have said, however, it is apparent that the matter of infringement is not to be determined by so simple a test. **The defendant is entitled, as it contends, to have its device appraised in the light of the prior art and to escape infringement even though it improved over such art, provided such improvement was the result of mechanical skill.**" (Emphasis supplied.)

This language is particularly pertinent to the situation here where the accused cell follows the teaching of the prior art and makes use of elements all old in the prior art, and performing the same function in the same combination in substantially the same manner. The accused cell does make use of an improved venting closure which is patented.

It would certainly require nothing more than mechanical skill for Petitioners to select the (tightly embracing) metal sheath from the Millar patent and to apply it to a conventional cell, especially, since Petitioners had long prior used a similar metal sheath for the same purpose in constructing the prior art batteries herein identified as Defendants' Physical Exhibits A-4 and 7.

We have no fault to find with the cases relied upon by the District Court; but those cases do not apply to the situation here where **there is no proof whatever that the cell of the patent in suit ever went into commercial production or ever accomplished the objects of the invention, or satisfied a long-felt want, or made any impression upon the art.**

Both lower Courts therefore erred in **not** finding, **as conclusions of law,** that the patent in suit is invalid; and that the Respondent is estopped to have the claims in suit interpreted **broadly** to cover the accused cell.

CONCLUSION.

Petitioners respectfully urge that the claims in suit are invalid as being anticipated by the prior art relied upon, and as lacking invention over the prior art and prior practices hereinbefore referred to, and for the further reason that the specification and claims are inadequate and indefinite and fail to particularly point out and distinctly claim the invention as required by the Statute. The claims in suit are not infringed when interpreted as they should be in view of the prior art, file history and the explicit limitations contained therein. The Courts below erred in fail-

ing to sustain the Defendants' (Petitioners') counterclaim under the Declaratory Judgment Act praying for a decree holding the claims in suit invalid and not infringed.

The decree below should be reversed.

Respectfully submitted,

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1022 Leader Building,
Cleveland, Ohio,
Attorneys for Petitioners.

FAY, GOLRICK, CHILTON & ISLER,
1022 Leader Bldg.,
Cleveland, Ohio,
Of Counsel.

This Broad Original Claim 5 was Deliberately Canceled from the Patent in Suit and Never Recaptured.

A leak immunized dry cell provided with

(1) circuit terminals

(a) at opposite ends comprising

(2) **a cup shaped metal electrode containing electrolyte**

(3) a carbon electrode and

(4) depolarizing mix in said electrolyte

(5) a top closure for said cup shaped electrode

(a) provided with a perforated cap resting on said carbon electrode, and

(6) a sheet metal shell

(a) enclosing the side walls of the cup shaped electrode and

(b) gripping the top and bottom of the cell with sufficient force to prevent fluids from escaping therebetween.

Note: Claim 5, which was canceled, does not include the limitations in bold type of claim 1 of the patent in suit.

Claim 1 of the Anthony Patent in Suit:

A leak immunized flashlight dry cell provided with

(1) circuit terminals

(a) at opposite ends comprising

(2) **a hollow cylindrical zinc metal electrode containing electrolyte,**

(3) a centrally disposed carbon electrode and

(4) depolarizing mix in said electrolyte

(5) **a bottom closure for the cell affording a terminal for one of the electrodes,**

(6) a top closure for the cell provided with a terminal for the other electrode

(a) electrically insulated from the first mentioned terminal, and

(7) a protecting sheet metal sheath insulated from both of said electrodes and

(a) enclosing the side walls of said metal electrode and

(b) tightly embracing said closures so as to prevent leakage of the electrolyte from the unit.

Claim 2:

A device as specified in claim 1, in which the sheet metal sheath is insulated from both of the electrodes by

(8) an interposed sleeve of paper which has been treated to render it moisture resistant and electrically non-conductive.

Claim 3:

A device as specified in claim 1, in which the marginal end portions of the metal sheath are

(a) turned inwardly to form flanges which overlap the end closures.

This Broad Original Claim 5 was Deliberately Cancele from the Patent in Suit and Never Recaptured:

A leak immunized dry cell provided with

(1) circuit terminals

(a) at opposite ends comprising

(2) **a cup shaped metal electrode containing electro lyte**

(3) a carbon electrode and

(4) depolarizing mix in said electrolyte

(5) a top closure for said cup shaped electrode

(a) provided with a perforated cap resting o said carbon electrode, and

(6) a sheet metal shell

(a) enclosing the side walls of the cup shape electrode and

(b) gripping the top and bottom of the cell wit sufficient force to prevent fluids from escap ing therebetween.

Note: Claim 5, which was canceled, does not include th limitations in bold type of claim 1 of the patent i suit and that element (5) of claim 1 is omitted en tirely.

APPENDIX II.

Claim 1 of the Anthony Patent in Suit:

A leak immunized flashlight dry cell provided with

(1) circuit terminals

(a) at opposite ends comprising

(2) **a hollow cylindrical zinc metal electrode containing electrolyte**

(3) a centrally disposed carbon electrode and

(4) depolarizing mix in said electrolyte

(5) **a bottom closure for the cell affording a terminal for one of the electrodes**

(6) a top closure for the cell provided with a terminal for the other electrode

(a) electrically insulated from the first mentioned terminal, and

(7) a protecting sheet metal sheath insulated from both of said electrodes and

(a) enclosing the side walls of said metal electrode and

(b) tightly embracing said closures so as to prevent leakage of the electrolyte from the unit.

Note: Elements (2) and (5) must mean a zinc cup plus an additional bottom closure which the accused cell does not have.

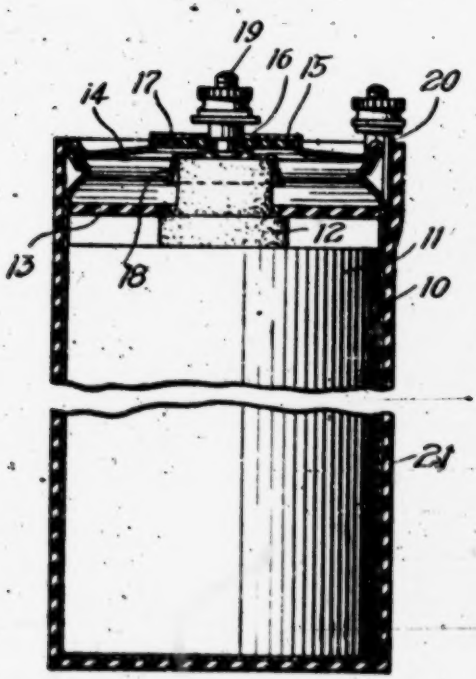
APPENDIX III.

May 7, 1935. P. CORIGLIANO 2,000,510

DRY CELL

Filed March 2, 1932 2 Sheets-Sheet 2

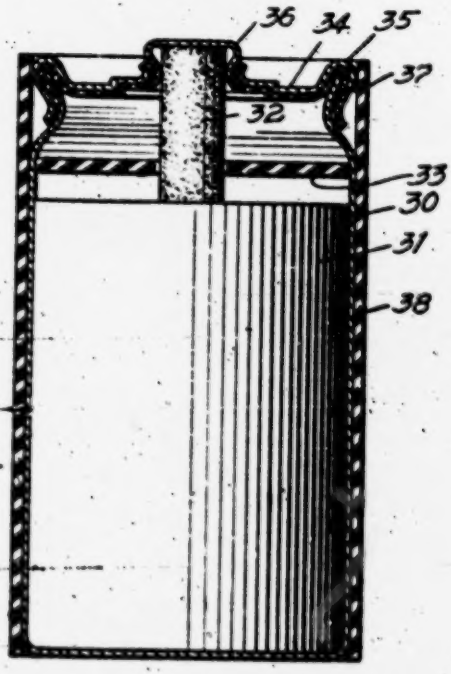
Fig. 2.



"Door Bell" Use

Fig. 6.

BRIGHT STAR
Commercial Cell



Flash Light Use

This patent, as well as other patents in the art, teach the complete adaptability of a "door bell" cell use to a flash light cell use by having both terminals at one end for the "door bell" use and by having the terminals at opposite ends for the flashlight use. This same double use is shown in Smith, Rec. p. 226, British patent 438,663, Rec. p. 239.

Inventor:
PETER CORIGLIANO
By KENYON & KENYON,
Attorneys

APPENDIX IV.

Applying Claim 1 to Olaneta using Olaneta's Reference Characters

A leak immunized flashlight dry cell provided with

(1) circuit terminals at opposite ends

(2) **a hollow cylindrical zinc metal electrode containing electrolyte** (1)

(3) a centrally disposed carbon electrode and (2)

(4) depolarizing mix in said electrolyte (3)

(5) **a bottom closure for the cell affording a terminal for one of the electrodes**

The prior art teaches (Corigliano Appendix A) how Olaneta affords a bottom terminal simply by exposing a part of the zinc cell bottom when Olaneta is used as a flash light cell.

(6) a top closure for the cell provided with a terminal for the other electrode (14 & 6)

(a) electrically insulated from the first mentioned terminal, and (Yes)

(7) a protecting sheet metal sheath insulated from both of said electrodes and (13)

(a) enclosing the side walls of said metal electrode and (Yes)

(b) tightly embracing said closures so as to prevent leakage of the electrolyte from the unit. (Yes)

April 5, 1927. H. DE OLANETA 1,623,719

DRY CELL

Filed Aug. 18, 1920

Fig. 1.

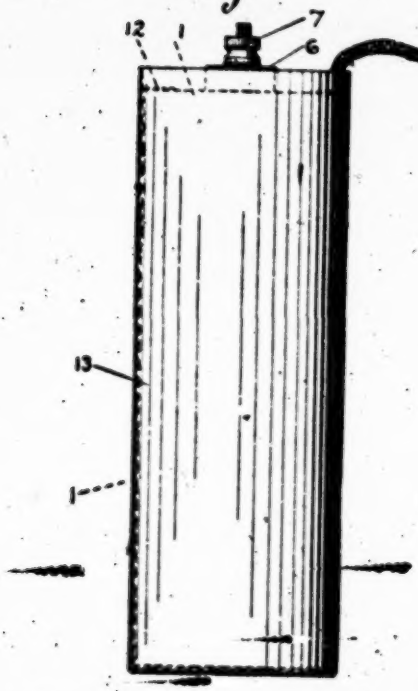


Fig. 4.

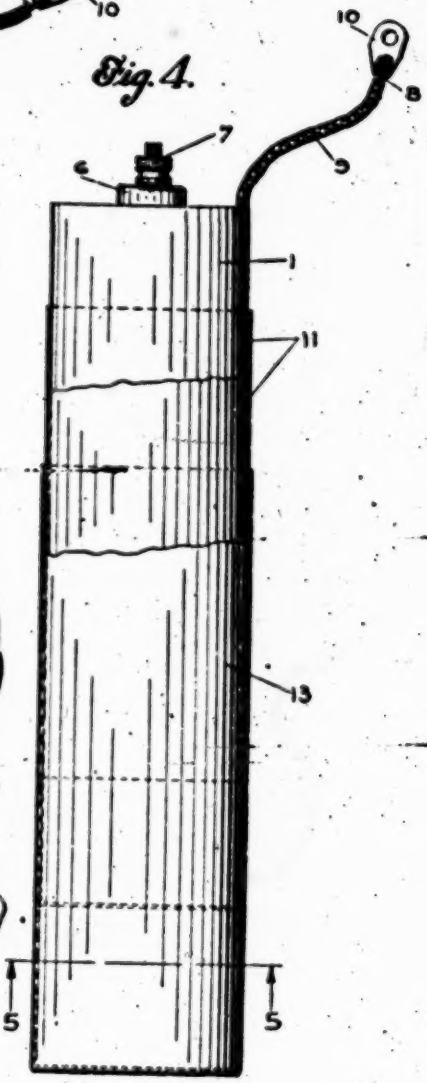


Fig. 5.

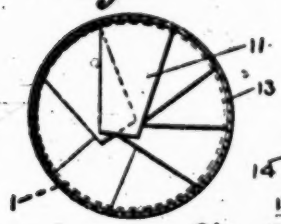


Fig. 2.

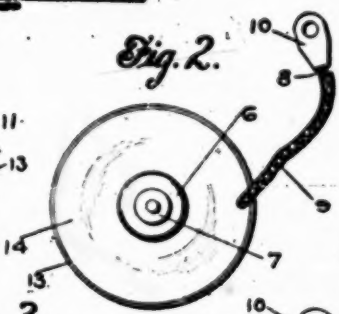
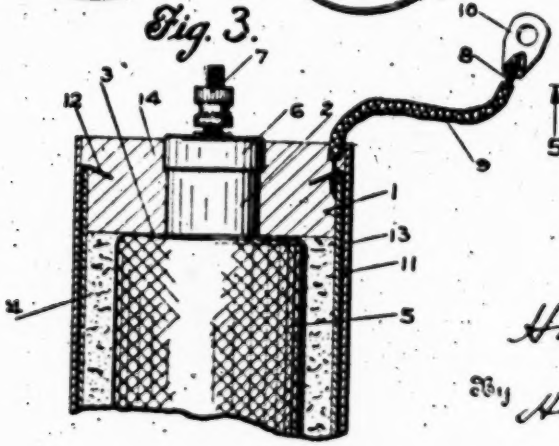


Fig. 3.



Inventor

Harold de Olaneta

By Henry E. Rockwell

Attorney

APPENDIX V.

Jan. 3, 1928. 1,654,823

W. R. MILLAR

FLASH LIGHT BATTERY

Filed Jan. 21, 1927

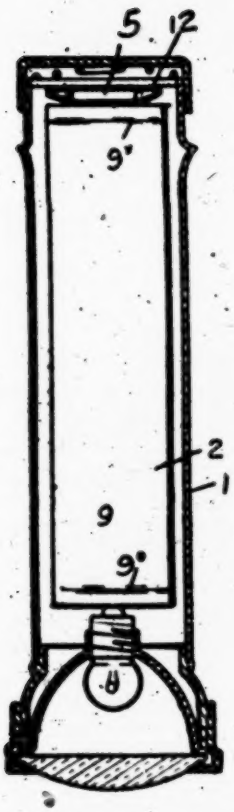


FIG. 1.

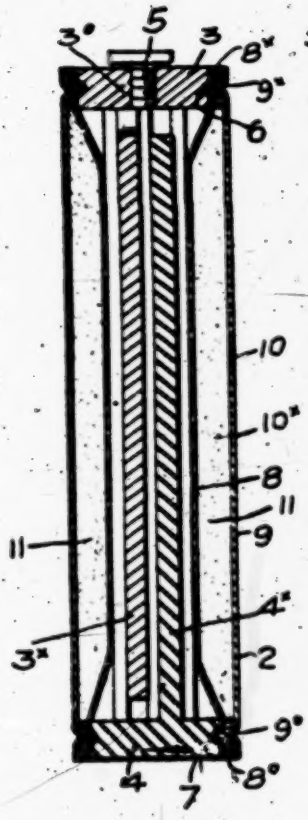


FIG. 2

FIG. 3.

Inventor
W. R. Miller
by J. Whittemore & Co.
Attys

MILLAR 1,654,823

Flash-Light Battery

* My invention relates to improvements in flash light batteries, and the object of the invention is to devise a battery of this type having a long life through not being subjected to polarization, in which gases are accommodated and the voltage maintained approximately constant and therefore a steadier light provided, in which the battery is so constructed that it can be readily sealed, in which **the outer battery casing is protected from corrosion so that there is no danger of bursting when left in an exhaustive condition rendering it almost impossible to be removed from the flash light**, in which the battery is so constructed that the metallic casing has no electrical contact with the battery elements, in which there is no danger of leakage at any time, and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

* Taken from Millar Specification, page 1, lines 1-21.

1—flash light case

2—battery

3—upper head

4—lower head

3x and 4x—negative and positive plates

9—outer metallic casing which is forced into grooves 6 and 7 thereby providing a sealed joint.

Millar clearly discloses the only alleged novel element claimed: namely, the metallic sheath 9 tightly embracing both end closures 3 and 4. Millar was not cited by the Examiner.

APPENDIX VI.

CROSS SECTION OF RAY-O-VAC COMMERCIAL CELL—PLTF'S. EX. 14.

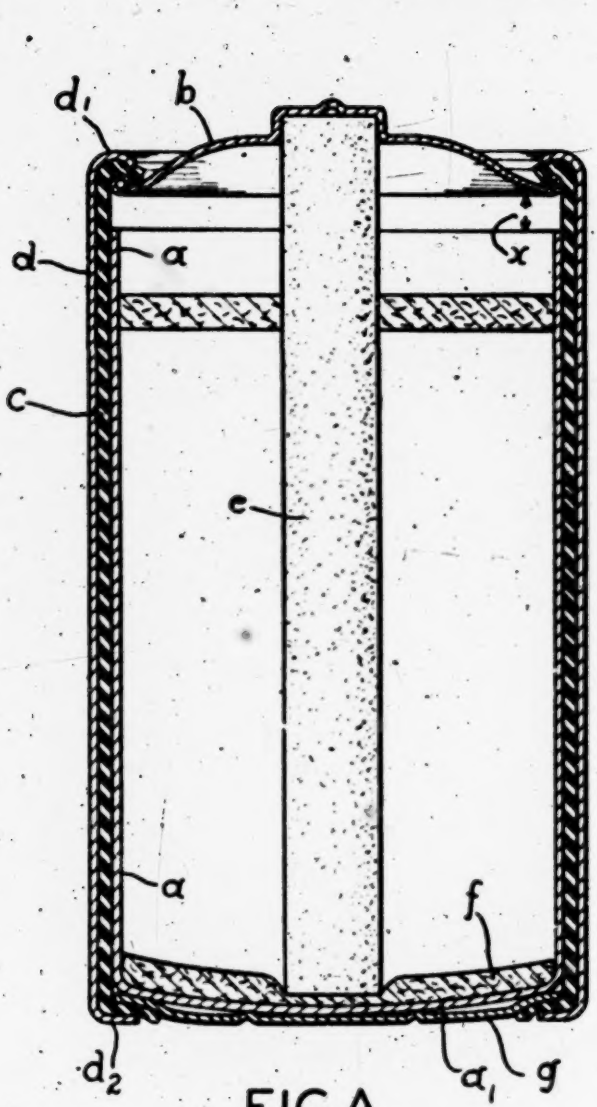


FIG. A.

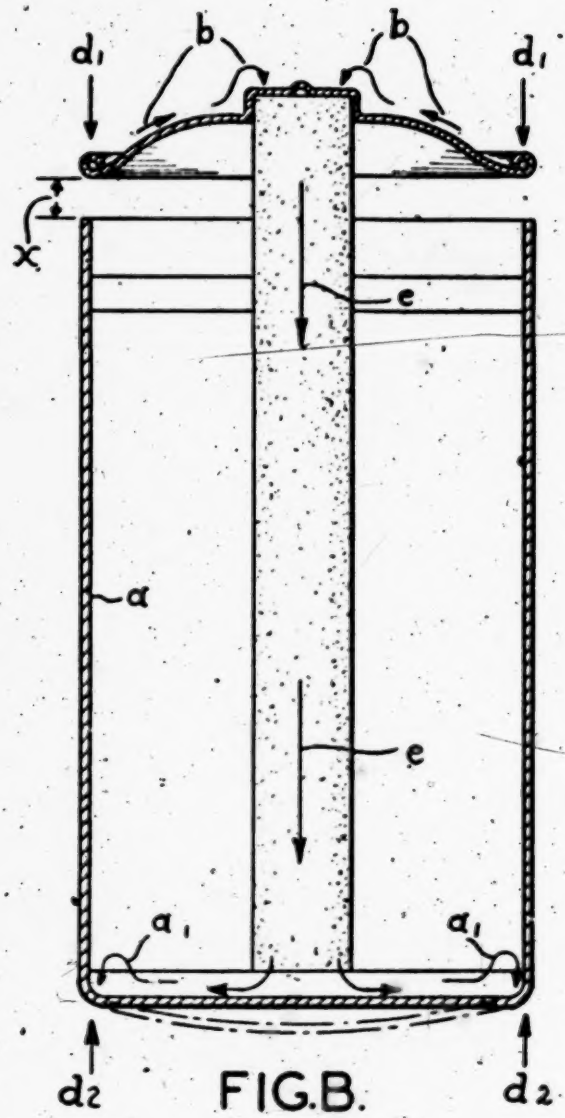


FIG. B.

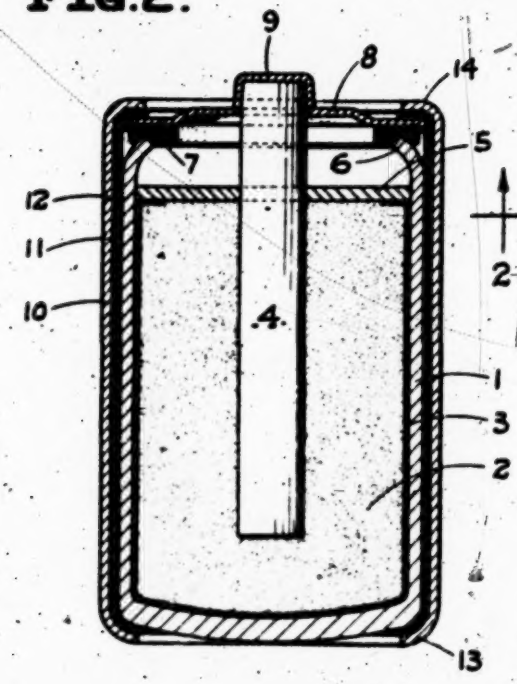
APPENDIX VII.

July 7, 1942. C. P. DEIBEL 2,289,249

DRY CELL BATTERY

Filed July 2, 1941

Fig. 2.



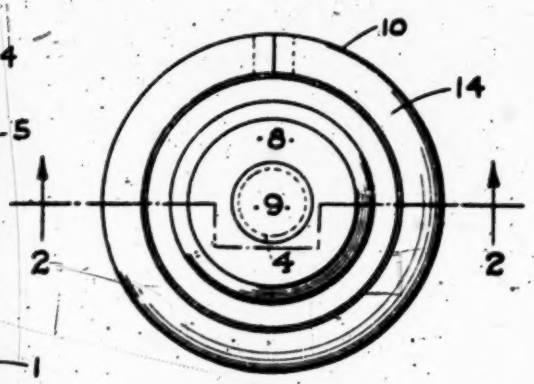


Fig. 1.

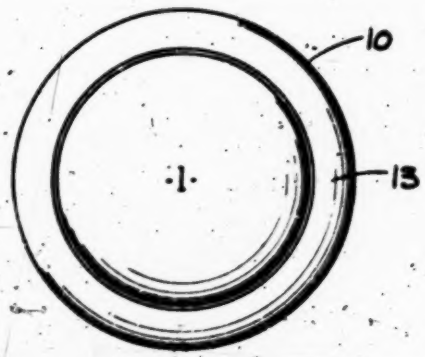


Fig. 3.

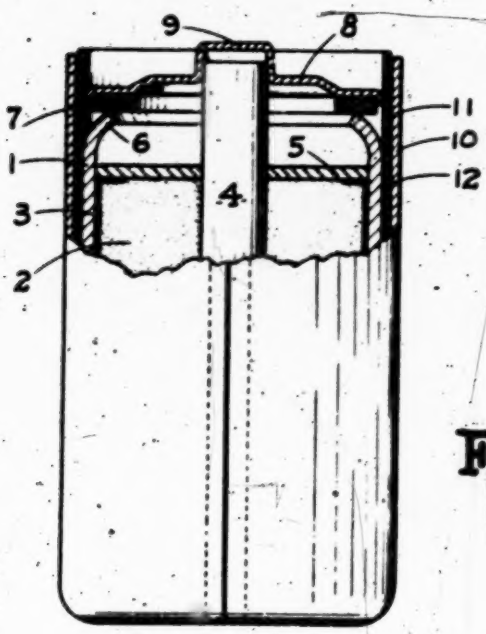


Fig. 4.

INVENTOR.
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DRY CELL BATTERY

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This invention relates generally to a dry cell battery which is particularly adapted for use with flashlights and which is also suitable for any use where leak-proof or substantially leak-proof dry cells are required.

One of the objects of the invention is to provide a battery which contains one or more dry cells which are enclosed within a suitable casing or sheath in such a manner as to permit excessive pressure within the battery to be relieved while preventing or reducing to a minimum the leakage of the liquid contents of the cell and at the same time preventing ingress of outside air into the cell or cells.

A further object of the invention is to provide a dry cell battery which preferably comprises a zinc cup containing suitable depolarizing mix, an electrolyte and a carbon electrode and which is closed by an imperforate metal closure, which is held in liquid-tight sealing relation with the cup, and which has electrical contact with the carbon electrode and is electrically insulated from the cup; together with a metal sheath which surrounds the cup and is insulated from both the cup and the metal closure and which holds the metal closure in place in such a manner that excessive pressure within the cell may be relieved without leakage of the liquid contents of the cell.

A still further object of the invention is to provide a dry cell which comprises an outer electrode preferably in the form of a zinc cup the upper edge of which is deflected inwardly and which receives thereover a sealing member or gasket which is formed of rubber or other suitable material together with an imperforate metal cap or closure resting on said gasket and held in somewhat resilient contact therewith by a metal sheath, the metal cap serving to close both the zinc cup and the metal sheath and cooperating therewith so as to provide means for venting the excessive pressure within the cell without permitting any substantial leakage of the liquid contents of the cell, the metal cap being insulated from both the metal sheath and the cup but having electrical contact with the carbon electrode.

A further object of the invention is to provide a dry cell having the above described distinguishing features and characteristics and which is well adapted for quantity production at comparatively low cost.

Further and more limited objects of the invention will appear as the description proceeds and by reference to the accompanying drawing in which Fig. 1 is a top plan view of a dry cell embodying the features of my invention; Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1; Fig. 3 is a bottom plan view of the cell; and Fig. 4 is a view partly in section and partly in elevation before the metal closing member is permanently secured in place.

Referring now to the drawing, the reference character 1 designates an extruded zinc cup the bottom wall of which is of substantially greater thickness than the side wall thereof. The zinc cup contains a mass of depolarizing mix 2 which is enclosed by a paper liner 3 and receives therein a carbon electrode 4. Disposed over the top of the mix and surrounding the carbon electrode is a washer 5 formed of paper or the like. The upper end of the cup is deflected inwardly as shown at 6 so as to provide a sharp peripheral edge.

Resting on the peripheral edge of the cup is a relatively thick washer 7 which is preferably formed of rubber or some other suitable electrical insulating material. Fitting over the washer 7 is an imperforate metal cap or closure 8 having a peripheral flange thereon which serves to receive and position the washer 7. The metal cap 8 has a recess or shouldered portion 9 which receives the upper end of the carbon electrode therein. Surrounding the cell is a tubular metal sheath 10 which is preferably coated on the interior thereof with a thin layer 11 of lacquer or the like. Fitting within the tubular metal sheath is a liner 12 which is preferably formed of "Pliofilm" or other suitable electrical insulating material. Pliofilm is hydrochlorinated rubber, that is, rubber to which hydrogen chloride has been added. It is a good insulator, strong and somewhat stretchable, tear resistant and impervious to gas and liquids and is not affected by hydrocarbons and is capable of being fused by the application of heat. The liner 12 is slightly longer than the tubular member and extends beyond the ends thereof.

In assembling the cell, the mix and carbon electrode are first inserted into the zinc cup and the upper peripheral edge of the cup is then deflected inwardly. The rubber washer or gasket 7 is then placed over the end of the cup in engagement with the rather sharp peripheral edge thereof. The imperforate metal cap is then placed over the carbon electrode in the position shown in Fig. 4. The cell is then inserted within the outer metal sheath or casing 10, the lower end of the sheath having first been deflected over inwardly as indicated at 13. The cell is then

placed within a suitable fixture and pressure is applied to the metal closure 8 to move it to the position shown in Fig. 1. The upper end of the tubular metal sheath 10 is then spun over inwardly, as indicated at 14 in Fig. 1.

It will be noted that the washer 5 is disposed a short distance below the top of the cell and serves to provide a gas chamber. It will also be noted that the liner 12 is folded over the top of the metal closure and also over the bottom of the zinc cup and serves to insulate the zinc cup from the metal sheath. The coating of lacquer serves as a further electrical insulating medium to prevent electrical contact between the zinc cup and the metal sheath. It will be noted also that the upper sharp peripheral edge of the zinc cup bites into the rubber gasket as will appear most clearly from Fig. 1, so as to provide an effective seal for preventing ingress of air into the cell and also to substantially prevent the escape of any of the liquid contents of the cell. The rubber gasket 7 cooperates with the upper peripheral edge of the cup and the imperforate metal closure 8 to provide a somewhat resilient sealing means which permits excessive pressure within the cell to be relieved. The rubber washer is sufficiently porous to permit gas pressure to escape therethrough while preventing the liquid contents of the cell from escaping to any substantial degree. It will be seen that the zinc cup is thoroughly and completely insulated from the outer metal shell as well as from the imperforate metal cap and that a liquid-tight joint is provided at the opposite ends of the metal sheath.

It will now be clear that I have provided a dry cell which will accomplish the objects of the invention as hereinbefore stated. It will of course be understood that various changes may be made in the details of construction as well as in the specific materials used without departing from the spirit of the invention, and that the embodiment of the invention herein disclosed is to be considered merely as illustrative and not in a limiting sense, as the invention is limited only in accordance with the scope of the appended claims. It is contemplated that two or more cells may be used within a single metal sheath, if necessary or desirable.

Having thus described my invention, what I claim is:

1. A dry cell comprising a zinc cup containing a mass of mix, an electrolyte and a carbon electrode, the upper end of said cup being deflected inwardly so as to provide a sharp upstanding peripheral edge formed by the corner between the side and end of said cup, a rubber gasket of substantial thickness and some porosity engaging said peripheral edge, an imperforate metal cap disposed over said gasket and having good electrical contact with said carbon electrode but insulated from said cup, said cup having an annular flat portion adjacent the outer edge thereof terminating in a downturned flange engaging the peripheral edge of said gasket and serving to position the same, a tubular metal sheath surrounding said cup and having one end deflected inwardly over said cap substantially horizontally and its opposite end deflected inwardly over the bottom edge of said cup, a thin lining of insulating material insulating said tubular sheath from both said cap and said cup, the upper sharp peripheral edge of said cup being embedded in said rubber gasket and providing valve means permitting excessive pressure to be relieved but preventing ingress of outside air, the inwardly deflected upper edge of said sheath being folded over the downturned flange on said metal cap and serving to compress said gasket against the sharp peripheral edge of said cup.

2. A dry cell comprising a zinc cup containing a mass of mix, an electrolyte and a carbon electrode, the upper end of said cup being deflected inwardly so as to provide a sharp upstanding peripheral edge, a rubber gasket of substantial thickness engaging said peripheral edge, an imperforate metal cap disposed over said gasket and having good electrical contact with said carbon electrode but insulated from said cup, said cap having a downturned flange engaging the peripheral edge of said gasket and serving to position the same, a tubular metal sheath surrounding said cup and having one end deflected inwardly over said cap substantially horizontally and its opposite end deflected inwardly over the bottom of said cup, a thin insulating cover formed of a distensible material which is impervious to gas and liquids, and which is not materially affected by hydrocarbons insulating said tubular sheath from both said cap and said cup, the upper sharp peripheral edge of said cup being embedded in said rubber gasket and providing valve means permitting excessive pressure to be relieved but preventing ingress of outside air, said gasket being compressed between the sharp peripheral edge of said cup and the substantially flat inwardly deflected portion of the adjacent end of said sheath.

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